

Dakota Micro, Inc.

Users Manual

AgCam® 7" or 9" Monitor Single or Double Camera Kit

Part Number: DMAC-7M/9M-C1(C2)



MORE







Capable
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***Always read the manual prior to operating this equipment. Also, please follow all safety signs and precautions.
See the Dakota Micro, Inc. website for installation training videos at www.dakotamicro.com.***

I. INCLUDED MONITOR KIT COMPONENTS
(PER PN: DMAC-7/9M)

Description	Picture
Dakota Micro, Inc. 7" or 9" Monitor	
Monitor Wire Harness PN: DMAC-MWH	
Monitor Remote PN: DMAC-REMOTE (styles vary by kit & battery is included)	
A/C Power Wall Plug PN: DMAC-PA (styles vary by kit)	
Monitor U-bracket with 4 Wing Bolts	
Monitor Sun Shield	
12v Cigarette Lighter Power Adaptor PN: DMAC-12v (styles vary by kit)	

INCLUDED CAMERA KIT COMPONENTS
(PER PN: DMAC-C1)

Description	Picture
AgCam® Camera	
Camera Bracket with Attached Magnetic Base PN: DMAC-CBM	
Camera component bag: Allen wrench, (x2) nylon washers, (x2) retaining screws & camera pigtail* *PN: DMAC-CT	
60' Power/Video Extension Cable PN: DMAC-EC60	
20' Power/Video Extension Cable PN: DMAC-EC20	

Thank you for purchasing the AgCam®

**The AgCam® is a durable, reliable surveillance system
with the innovative ability to be quickly moved from
one application to the next.**

Training videos are available on the Dakota Micro
website at: **www.dakotamicro.com**.

II. STANDARD FEATURES

A. Cameras

- Waterproof, shockproof, and suitable for nearly any use.
- Minimum focal distance of 5".
- Built-in, high quality CCD camera with high performance infrared (IR) illuminator modules.
- IR has effective range of 45'+ in complete darkness.
- Built-in CDS light-source sensor automatically turns the IR's on/off by detecting the light intensity of the environment.
- Our exclusive Photogray camera body lens darkens in bright conditions and becomes completely transparent under low light conditions. This lens is also transparent of infrared light, allowing the LED's to penetrate even when it is darkened.
- Standard lens features 92° field of view (3.6mm).
- Optional lenses available include: 6mm, 12mm & 16mm. (A complete lens guide is available on our website.)
- Function plugs on Elite AgCam® versions allow for IR ON/OFF and switching of forward/reverse image.
- Removable/replaceable camera tail.

B. Monitors

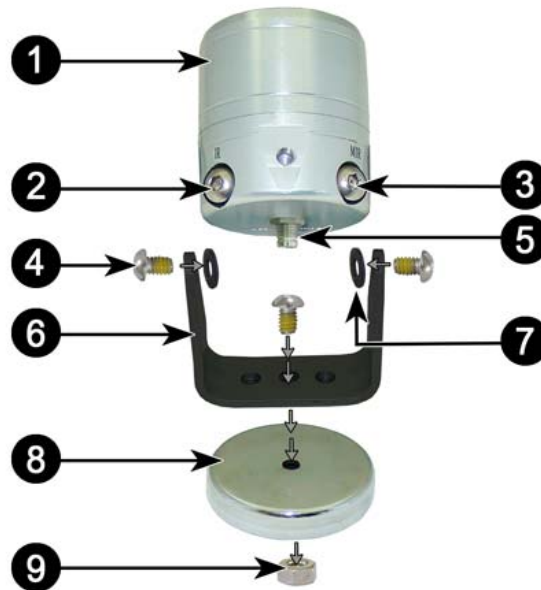
- Feature the latest in LCD technology.
- 4 Camera Inputs
- Available in 7" or 9" size
- Include event triggers for each camera input.
- Color, brightness, contrast and volume controls that allow compensation for use in different environments.
- Remote control, sun shield, and metal U-bracket monitor stand included.

C. Cables

- Silicone jacket enables high flexibility in all temperatures.
- Our durable power/video extension cables come in 20' and 60' standard lengths and feature sturdy, watertight connectors.
- **Additional power/video cables available in the following lengths: 10', 30', 40', 50' & 80'.**

III. PARTS OF AN AGCAM**A. Camera**

1. Camera Body
2. IR Function Plug *
3. MIR Function Plug*
4. Retaining Screw (x3)
5. Camera Tail Input
6. Camera Bracket
7. Fiber Washer (x2)
8. Magnet
9. Magnet Nut



*Function Plugs (Elite Models Only)

There are two (2) function plugs on the bottom of each Elite AgCam® camera, near the camera tail. They will look like two (2) additional screws at a slight angle recessed into the camera body. The function plugs utilize a polarized magnet to change camera functionality.

- **IR ON/OFF** - This function plug requires a magnet to allow for the IR LED's to function in low light conditions. If you remove the polarized magnet, the IR LED's will *NOT* come on.
- **MIR/FOR** - This function requires a magnet to activate/deactivate the mirror/forward function of the camera. Elite cameras are shipped from the factory with the MIR magnet installed.

IV. CAMERA MOUNTING

After camera is securely mounted, plug the camera pigtail into rear of AgCam® camera. You can now plug the remaining end of the pigtail into your power/video extension cable. Make sure the extension cables are securely attached and locked (¼ turn will lock the cables together).

A. Temporary Mounting

- For temporary mounting, it is recommended that you use the supplied 65# pull magnet. If using magnetic mount, fasten camera cable with a zip tie or other style fastener. This will act as a "safety wire" in the event your camera is knocked loose for some reason. When selecting a location, make sure that the equipment surface is clean of all foreign material and as flat as possible to ensure that the magnetic camera base will have good contact and not vibrate off. The thicker the metal base, the more securely your magnet will hold.

B. Permanent Mounting

- For permanent mounting, it is recommended that you remove the magnet and attach the camera bracket to any solid surface with two (2) screws.

C. Suggestions for Camera Mounting

- When determining the location for the camera, it is always best to use a solid surface to minimize vibration.
- **Important-** *Ladders are not good mounting choices due to lack of stability.*
- If you will be using your AgCam® for assisting in visibility for towing, you will want to position the camera so you can see the desired area and a portion of the vehicle/trailer in tow; this will give you some reference to distance. You will also want to use the mirrored setting in the monitor menu or remove the magnet in the MIR function plug on the camera so as to accurately represent left and right. This will give you the effect of looking in a rear view mirror.

V. CAMERA WARNINGS**A. NEVER RELY ON YOUR AGCAM® AS A SAFETY FEATURE.**

It is up to your discretion to keep your road travel and other operations safe. Your AgCam® will provide you with information only based on what it sees. Operation of machinery safety guidelines still apply.

- B.** The AgCam® is equipped with an array of infrared light emitters which are invisible to the human eye. This feature will aid in low light conditions but has limitations. The effective range of the night vision feature is 1 to 45+ feet and will produce a monochrome image only.

DO NOT ATTEMPT TO DRIVE MACHINERY USING THIS FEATURE.

VI. CABLE ROUTING TIPS & WARNINGS

There are two (2) lengths of cable that come standard with our AgCam® camera kits: One (1) 20' and one (1) 60'. If you would like to purchase different, or additional, cable lengths, please contact your local AgCam® dealer.

- A.** Cable routing is important; where you choose to run the cables should not interfere with the normal operation of the machine or any safety equipment.
- B.** *ALWAYS* be aware of any “pinch points” or other potential hazards to the cable(s).
- C.** Secure all cables to vehicle/equipment using cable clips, zip ties or other style fasteners.
- D.** If you intend to use your AgCam® for short length PTO operated implement, avoid excess cable lengths, if possible. When you decide on a location, you should fix the camera to a permanent bracket using ¼ inch bolts, and attach any loose cable securely so there is no chance of entanglement in the PTO or other moving parts.
- E.** If you use your AgCam® to monitor a combine hopper or other combine operations, take care to remember that combines have many moving parts. Use extreme care when routing cables, and it is strongly recommended that you use bolts to secure the camera. While it would be sufficient to use the magnetic base for monitoring purposes during road travel, it is advised to secure the camera with bolts during operation of the combine.

VII. MONITOR INSTALLATION & MOUNTING**A. Mounting Precautions**

Remove your monitor carefully from packaging and inspect all mounting hardware. Mounting location is the most important part of the monitor installation as it ensures you the maximum visual benefit from your AgCam® system.

With that said, when installing your monitor, ensure to follow these three (3) precautions:

1. The monitor is out of direct sunlight. This will prolong the life of the unit as well as ensure optimum visibility.
2. The monitor does not obstruct view.
3. The monitor does not interfere with the normal operation of equipment.

WARNING:

Dakota Micro, Inc. is not responsible for any damages caused to your monitor, or yourself, due to the improper installation or use of a suction cup monitor mount, whether it be product sold by DM or product purchased from another source.

B. Universal Bracket Mounting

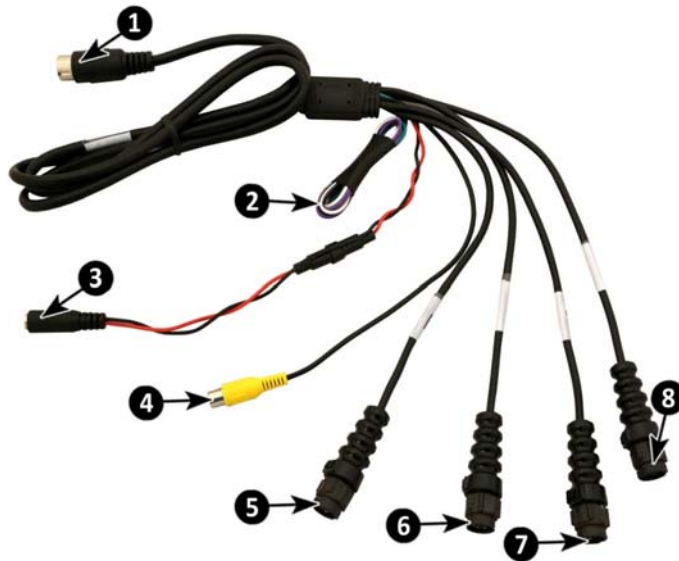
1. Hold monitor U-bracket in place on monitor.
2. Attach bracket with included wing bolts.

C. Finalizing Universal Bracket Installation

1. With the mount and monitor attached, find and mark the desired position for the monitor.
2. Remove the monitor from the mount.
3. Attach the monitor to the mount and tighten the wing nuts.

**VIII. INSTALLATION****A. Monitor Wire Harness Details**

1. Input to Monitor
2. AV1-4 Event Trigger Wires
(Pg. 6)
3. Power Input
4. RCA-Video Output
5. AV1 - Audio/Video Input
6. AV2 - Audio/Video Input
7. AV3 - Audio/Video Input
8. AV4 - Audio/Video Input

**IX. POWER****A. Supplying Power with 12v Power Adaptor**

1. Attach the power input connector (3 above) to your included 12v cigarette lighter power adaptor.
2. Plug cigarette lighter adaptor into 12v power source.

B. Hardwire Power Adaptor

1. If you would like to hardwire your power supply, please contact your local AgCam® dealer for available hardwire power adaptors (PN: DMAC-HARDWIRE).
2. Dakota Micro hardwire power adaptors have a maximum circuit capability of 7.5 amp.

C. Fuses

1. There is a small in-line glass fuse located on the red and black power wire (3 above). When replacing this fuse, use a MAX 2amp glass fuse.
2. There is a small glass fuse located on the inside tip of the 12v portion of the power adaptor (PN: DMAC-12v). When replacing this fuse, use a MAX 4amp glass fuse.

X. EVENT TRIGGER WIRE OPERATIONS

A. Event Trigger Wire Color Guide

1. Camera 1 – Green
2. Camera 2 – Purple
3. Camera 3 – Gray
4. Camera 4 – White

B. Event Trigger Wires Explained

Event trigger wires can be attached to any 12v positive event. This will cause the monitor to change to that camera, regardless of the state of the monitor (i.e. ON/OFF or channel selection). The most recent event will be the primary display. So, if two (2) video channels (AV1 & AV2) are attached to an event output, the event that happens last will change the monitor to its respective camera view.

The wires can be attached to any positive output 10.5v to 16.9v switch or supply to cause the monitor to automatically switch the unit to its respective channel camera. **Example:** if you were to attach the AV1 wire to a positive output from an unloading auger on a combine, the monitor would switch from channel 2, 3, or 4 to channel 1 when the auger is extended. The event circuit should be neutral in its normal state and change to HIGH (+12v) when the event is considered to be active.

XI. REMOTE & MONITOR OPERATION

A. 7" or 9" Monitor Operations - Front















1-3 FOR USE ONLY WITH Quad Processor

1	Headphone Jack	Output for audio (available only on 9" Models)
2	Full Screen	When connected to DM Quad, will show cameras 1/2/3/4 each time pressed.
3	Duplex Screen	When connected to DM Quad will show Camera 1 /4 and camera 2 /3 each time pressed.
4	Quad Screen	When connected to DM Quad will display all 4 cameras connected.
5	- Key	To decrease parameter.
6	+ Key	To increase parameter.
7	MENU	To switch menu selection, press multiple times. To go to next icon, use +.
8	AV Key	Switches between AV1, AV2, AV3, & AV4.
9	Power	Powers Monitor ON and OFF

10-11 ports located on bottom of monitor

10	Quad Input	USB female connector for Quad processor.
11	VGA Input	Input for VGA from computer or other console (duplicates image from input device).

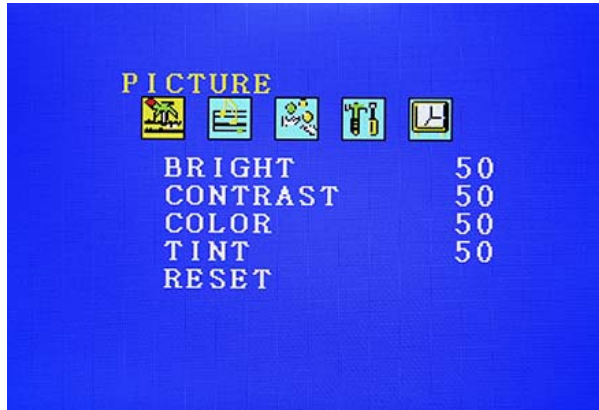
B. Remote Operations

	POWER ON/OFF
	Mute Enable/Disable sound
	Flip image Left/Right
	Flip image Up/Down
	Navigation Arrows
	MENU - Enters the menu Also acts as "enter" button in menu settings
	MODE - Adjusts screen display modes
	RESET - Reset your selection
	TIMER - Enables timer that will turn off monitor
	GRID - Superimpose a grid on screen
	Aspect Ratio - adjustment normal/wide
	SEL - Chooses the highlighted selection in MENU

**XII. MENU SETTINGS**

Press the MENU key on the monitor or remote. Use the – and + keys on the monitor or the Left and Right arrow keys on the remote to move through the icons at the top of the screen.

1. Use the MENU key on the monitor (up and down arrows on remote) to select an item under each section. Selected menu items turn red.
2. Use – or + on the monitor (left and right arrows on remote) to change the value of the highlighted item.
3. To exit:
 - a. Press the – or + key on the monitor (left or right arrow on remote) multiple times until the menu goes away.
 - b. Allow monitor to time out (approximately 5 seconds).

PICTURE

BRIGHT: Adjusts the brightness of the image.

CONTRAST: Adjusts the contrast of the image.

COLOR: Adjusts the color of the image.

TINT: Adjust tint of image (appears only when camera is plugged in).

RESET: Returns settings to default.

VOLUME

VOLUME: Adjusts the volume level.

OPTION

CAMERA 1: AV1 event trigger delay time.

CAMERA 2: AV2 event trigger delay time.

CAMERA 3: AV3 event trigger delay time.

CAMERA 4: AV4 event trigger delay time.

ROTATE: Inverts image on screen.

SYSTEM

LANG: Select your language (English default)

SOURCE: Adjusts the AV input source (AV1 default)

GUIDE LINES: Super imposes a grid on your monitor screen (select ON or OFF)

PRESET

SLEEP: Enables sleep timer delay setting (in minutes).

AV1: Enable (ON) or Disable (OFF) AV1.

AV2: Enable (ON) or Disable (OFF) AV2.

AV3: Enable (ON) or Disable (OFF) AV3.

AV4: Enable (ON) or Disable (OFF) AV4.

VGA: Enable (ON) or Disable (OFF) VGA input.

XIII. SPECIFICATIONS

A. Camera	
Video System	NTSC (Silver Cameras) / PAL (Black Cameras)
Effective Picture Elements	510*492
Image Pick-up Device	SONY 1/3" Super HAD CCD Sensor
Horizontal Resolution	720 Horizontal lines
Minimum Illumination	0 LUX @ F2.0
S/N Ration	More than 48dB
Auto Electronic Shutter	1/60s~1/100,000s, ON/OFF Switch-able
Auto White Balance	Color Temperature: 2500K~9500K
Auto Gain Control	High/Low Switch-able
Auto Iris Control	Video-Drive Iris Control
Scanning System	Interlace 2:1
Gamma Characteristic	0.45
Lenses Furnished	Board Lens 3.6mm/F2.0, Photogray Body
Synchronous System	Internal, Negative sync.
Back Light Compensation	On/Off Switch-able
Video Output	1 Vp-p/75 Ohms.
Operating Temp.	-45°F~150°F (-42°C~66°C)
Construction	Aluminum Case
Waterproofing criteria	IP 69
Dimensions	53x58 (L) mm (Body Only)
B. LCD Monitor	
Screen Size	9" (16:9) digital panel/7" (16:9) digital panel
Overall Size	235(L)X155(W)X36.5(H)mm
Weight	600g avg.
Power Input	DC 10.5-16.9V, >1,200 ma
Color System	NTSC/PAL manual switch
Operating Temp.	-30°F~130°F (-34°C~+54°C)
Touch Panel	4-Wire resistance (optional function)
Brightness	400cd/m ²
Resolution (HxV)	800(RGB)x480
Contrast	500:1
Viewing Angle	L/R: 70° Up: 70° Down: 60°
Operating Voltage	Min. 12v (Check monitor label for specific voltage range)

XIV. WARNINGS

- When selecting a camera system from Dakota Micro, be sure to utilize the appropriate system for your use. AgCam and EnduraCam cameras are designed for high impact, moisture, vibration and a variety of other rough conditions. OverView cameras and kit components are designed for light use, low vibration and low moisture. OverView equipment is not warranted when used in situations outside of the above mentioned parameters. We always request that customers keep in mind that our less expensive OverView product line is cheaper because it does not feature the reliability and durability of our AgCam and EnduraCam lines. The warranty available on these products reflect that durability.
- To avoid electrical shock and maintain optimal functionality, do not open the enclosures. High voltage may be present and there are no user serviceable parts inside. All warranties will be void should any enclosures be tampered with in any way.
- Do not use any harsh chemical solvents, cleaning agents or corrosive detergent to clean away dirt on the surface of the screen or lens.
- On AgCam and EnduraCam products, the photo-chromic camera lenses have been made impact-resistant and have been drop-ball tested according to Sec. 3.84,21 CRF BUT ARE NOT UNBREAKABLE. Because they have been hardened chemically, they show no stress pattern. Inspect your lenses frequently. Chipped or scratched surfaces will reduce protection. Such lenses should be replaced only by the manufacturer.
- Power to cameras is not interrupted by turning off monitor; 12v power source must be terminated when not in use to avoid battery drain. To avoid this problem be sure when hard wiring a unit, use a fused circuit.
- Do not use your Dakota Micro camera system for anything other than legal surveillance and observation uses. Dakota Micro, Inc. is not liable for any illegal or nefarious usage.

XV. PRODUCT WARRANTY/REPAIR PROCESS

1. For Technical Support call 1 866 462-4226 OR email techsupport@dakotamicro.com
2. Technician will assist in troubleshooting product malfunction.
3. If product malfunction cannot be remedied and a repair is deemed necessary, Technician will issue a Repair Authorization (RA) number.

IMPORTANT NOTE:

The Technician will note on the RA form if the repair APPEARS to be a warranty or non-warranty issue based on customer description of the issues at hand. No final determination can be made until inspection and testing of the equipment is completed at the factory.

4. To ensure fast and effective repairs, customer is required to send:
 - Dakota Micro Product that Technician has requested/deemed necessary in the proper diagnosis and repair of malfunction. This may include some or all components of the kit.
 - Original/Copy of purchase receipt.
 - For serialized items ONLY; If a copy of the original purchase receipt cannot be provided, then DAKOTA MICRO will use the product manufacture date.
 - Customer information, including return street addresses (**NO** PO Boxes) & phone number. If the phone number is not included, the customer will be sent a letter requesting the needed information.
 - RA Number provided by Dakota Micro Technical Support
 - Shipping and associated costs to ship product to DM factory to be borne by the customer unless otherwise specified.
5. Customer should mail product to:
Dakota Micro, Inc.
RA # XXXXX
8659 148th Ave. SE
Cayuga, ND 58013
6. Upon receipt and evaluation of product at Dakota Micro Factory, it will be established if the repair is warranty or non-warranty. If requested, customer will be called and notified of any applicable charges.
7. If the repairs are deemed non-warranty, and require a service/repair fee of any kind, a credit card number will be requested by Order Processing after the repair is completed.
8. If customer is unable to be contacted over the course of 3 weeks regarding required non-warranty repairs, product will be returned, unrepared, to the customer.
9. Any product returned without proper documentation may be returned at customer's expense.
10. Product returned with unconfirmed problems will be assessed a \$60 evaluation fee per unit
11. Return shipping costs will be borne by the party at fault; in other words, if Dakota Micro determines that the defective product was covered under warranty, Dakota Micro pays the shipping charges. If Dakota Micro determines that it was the customers fault, the customer will pay shipping charges. If a particular circumstance cannot be determined than the cost of shipping charges will be decided on a discretionary basis depending on the situation at hand.

XVI. CONSUMER LIMITED WARRANTY

Subject to the disclaimer, limitations and other directions stated hereafter, Dakota Micro, Inc. warrants that the Product will be free from defects in material and workmanship for periods as stated hereafter from the date of original purchase. **THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS. THE EXCLUSIVE REMEDY OF THE BUYER IS LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT. EXCEPT AS STATED IN THIS WARRANTY, DAKOTA MICRO SHALL NOT BE LIABLE FOR ANY LOSS, INCONVENIENCE, OR DAMAGE, INCLUDING DIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER RESULTING FROM BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY OF ANY OTHER LEGAL THEORY.** Any oral statements or representations made by anyone which are contrary to or at variance with the terms stated in this **LIMITED WARRANTY** are void.

Dakota Micro will, at its option, either repair the defect or replace the defective Product or part thereof with a new or remanufactured equivalent at no charge to the purchaser for parts or labor for the period of three (3) years for AgCam® /EnduraCam® cameras, two (2) years for AgCam® /EnduraCam® monitors, quads and Wireless components, Twelve Months (12) for all Overview Cameras & Monitors and one (1) year for Mini DVR, cables and all other accessories.

The Dakota Micro limited warranty periods outlined above apply throughout the United States and Canada only. A one (1) year maximum limited warranty for all Products applies to all other geographic locations unless otherwise stated in writing by Dakota Micro.

This limited warranty does not apply to any issues connected with appearance that have no relation to the performance of the Product nor to any Product the exterior of which has been damaged or defaced, which has been subjected to improper voltage or other misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser should follow the steps set forth in the complete Dakota Micro "Warranty & Repair Policy" listed on page 11 - section XVI, and provide proof of purchase to Dakota Micro.

Neither the sales personnel of Dakota Micro nor any dealer or any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time periods described herein.

The warranties described herein shall be the sole and exclusive warranties and remedies provided by Dakota Micro. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Dakota Micro to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims. In no event shall Dakota Micro be liable or in any way responsible for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than Dakota Micro.

Some states do not allow the limitation or exclusion of incidental or consequential damages, so said limitation may not apply to you.

Any action at law, suit in equity, or other judicial proceeding for the enforcement of any right provided for herein or otherwise, or with respect to any claim that a purchaser may have against Dakota Micro shall be instituted only in the Courts of the State of North Dakota, either in the state district court located in Wahpeton, North Dakota or in Federal District Court location in Fargo, North Dakota. Without regard to conflicts of law principles, the laws of the state of North Dakota shall govern the interpretation and enforcement of the terms of this Limited Warranty and all aspects of the relationship between Dakota Micro and the purchaser.

This warranty gives you specific legal rights and you may also have other rights, which may vary from state to state.

XVII. DISCLAIMER

Dakota Micro Inc. products, specifications, pricing and programs are subject to change without prior notice. Dakota Micro Inc. reserves the right to make design changes at any time without obligation to retroactively install them on previously sold units.

XVIII. CONTACT US

Dakota Micro, Inc.

8659 148th Ave. SE.
Cayuga, ND 58013

www.dakotamicro.com